SLV-SE310/SE410/SE510

RMT-V257B/V257C

SERVICE MANUAL

AEP Model

SLV-SE310D/SE510B/D/SE510D

UK Model

SLV-SE310I

East European Model

Russian Model

SLV-SE410K/SE510K

Photo: SLV-SE510

- **Refer to the SERVICE MANUAL of VHS MECHANICAL ADJUSTMENTS VI for MECHANICAL ADJUSTMENTS. (9-921-647-11)**

S MECHANISM

The abbreviations of SE310/SE410/SE510 contained in this service manual are indicated when these models are common to all their corresponding models as given below.

Abbreviated models name	SE310	SE410	SE510
All model names SLV-	SE310D SE310I	SE410K	SE510B SE510D SE510K

SPECIFICATIONS

System

Channel coverage

SLV-SE310I

PAL (I)
VHF IA to IJ, SA10 to SA13
UHF B21 to B69
CATV S01 to S05, S1 to S20
HYPER S21 to S41

SLV-SE410K/SE510K

PAL (B/G, D/K)
VHF E2–E12, R1–R12
UHF E21–E69, R21–R69
CATV S1–S41, S01–S05

SLV-SE310D/SE510D

PAL (B/G)
VHF E2 to E12
VHF Italian channel A to H
UHF E21 to E69 0
CATV S01 to S05, S1 to S2
HYPER S21 to S41

SLV-SE510B

SECAM (L) : VHF F2 to F10
UHF F21 to F69
CATV B to Q
HYPER S21 to S41
PAL (B/G) : VHF E2 to E12
VHF Italian channel A to H
UHF E21 to E69
CATV S01 to S05, S1 to S20
HYPER S21 to S41

RF output signal

UHF channels 21–69

Aerial out

75-ohm asymmetrical aerial socket

Tape speed

SP: PAL/MESECAM
23.39 mm/s (recording/playback)
SECAM 23.39 mm/s (recording/playback)
NTSC
33.35 mm/s (playback only)

LP: PAL/MESECAM
11.70 mm/s (recording/playback)
SECAM 11.70 mm/s (recording/playback)
NTSC
16.67 mm/s (playback only)

EP: NTSC
11.12 mm/s (playback only)

– Continued on next page –

VHS VIDEO CASSETTE RECORDER

SONY

Maximum recording/playback time
10 hrs. in LP mode (with E300 tape)
Fast-forward and rewind time
Approx. 3 min. (with E180 tape)

Inputs and outputs

☞ LINE-1 (TV)
21-pin
Video input: pin 20
Audio input: pins 2 and 6
Video output: pin 19
Audio output: pins 1 and 3
DECODER/☜ LINE-2 IN
21-pin
Video input: pin 20
Audio input: pins 2 and 6

General

Power requirements
220 – 240 V AC, 50 Hz
Power consumption
18 W
1.5 W (POWER SAVE is set to ON, minimum)
Operating temperature
5°C to 40°C
Storage temperature
–20°C to 60°C
Dimensions
Approx. 355 × 96 × 288 mm (w/h/d) including projecting parts and controls
Mass
Approx. 3.7 kg

Supplied accessories

Remote commander (1)
R6 (size AA) batteries (2)
Aerial cable (1)

Design and specifications are subject to change without notice.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer:

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270˚C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

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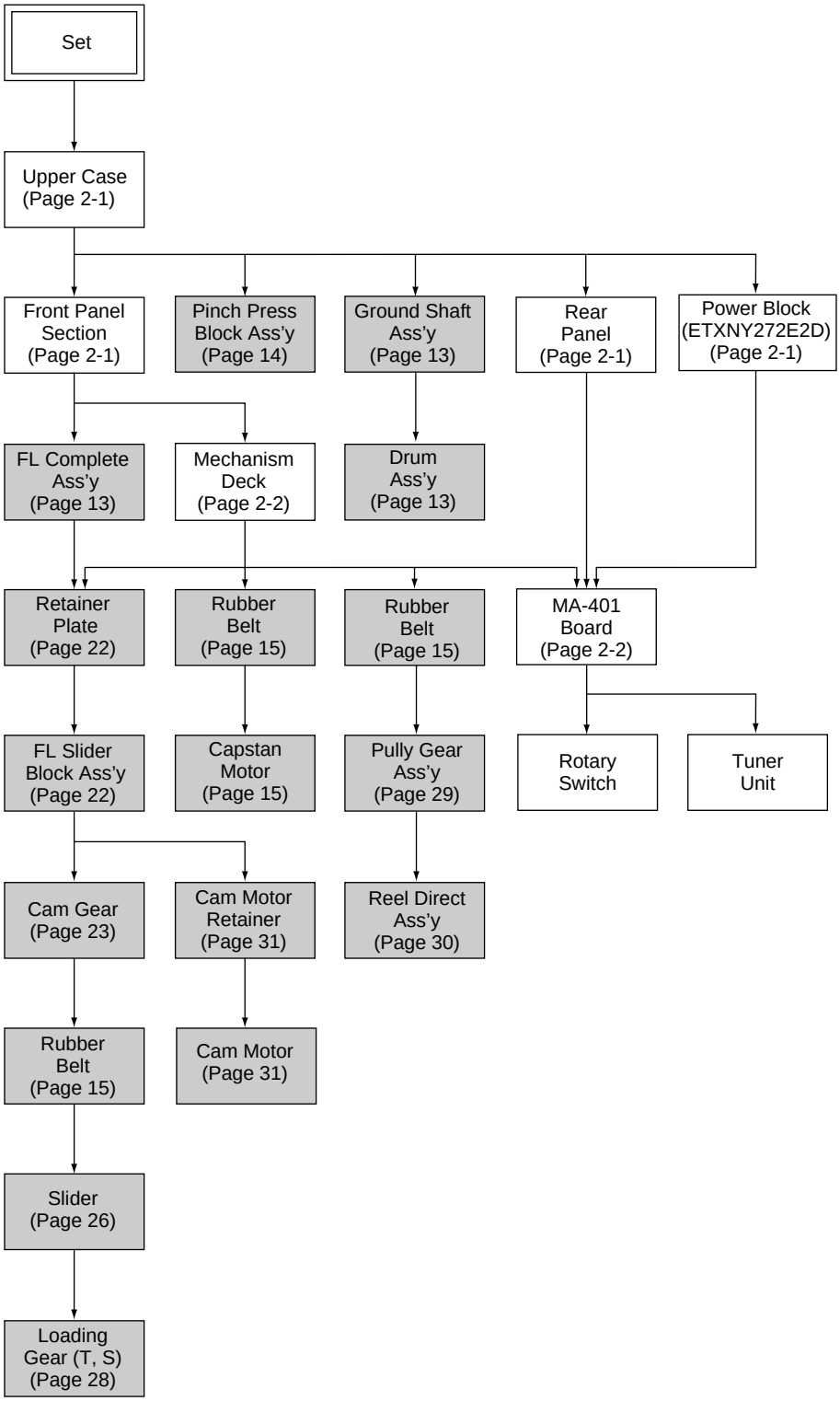
SERVICE NOTE

1. DISASSEMBLY

• This set can be disassembled in the order shown below.

Note: Pages in ▭ indicated pages in the SERVICE MANUAL.
Pages in ▭ indicated pages in the VHS MECHANICAL ADJUSTMENT MANUAL VI.


Set
Upper Case (Page 2-1)
Front Panel Section (Page 2-1)
Pinch Press Block Ass'y (Page 14)
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Rubber Belt (Page 15)
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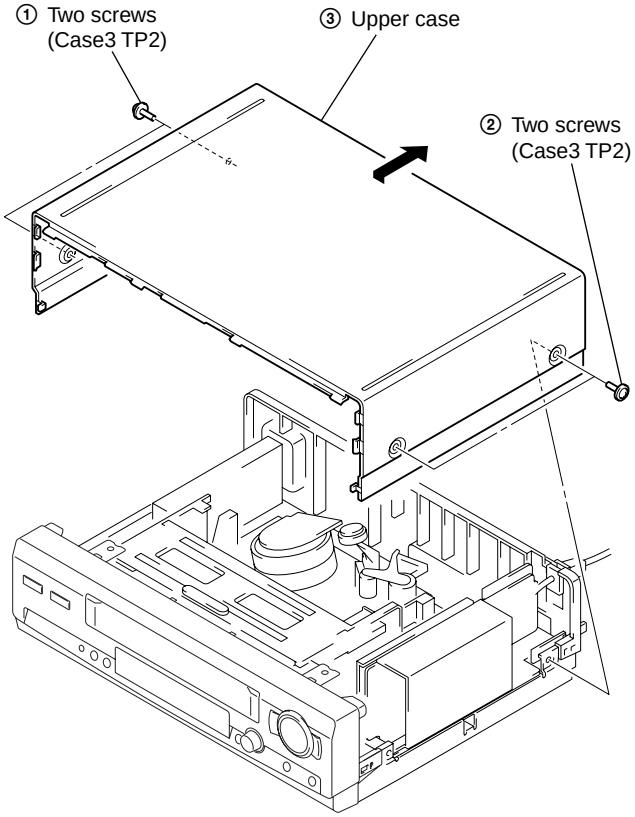
Cam Motor (Page 31)
Slider (Page 26)
Loading Gear (T, S) (Page 28)

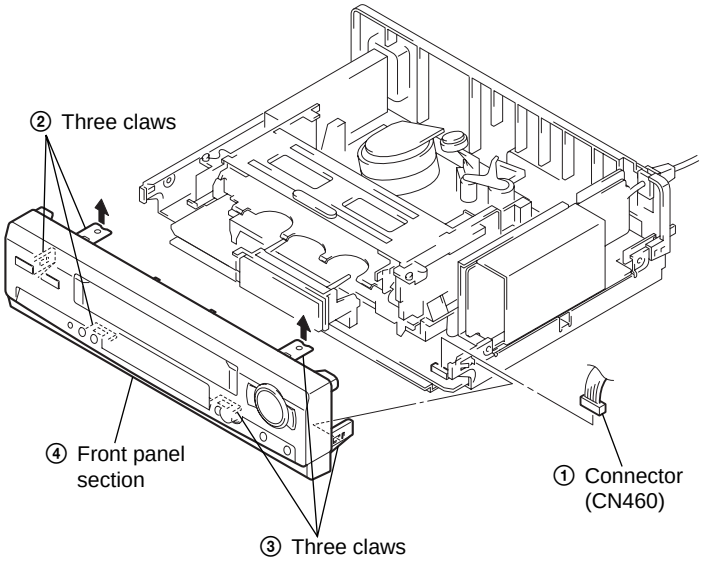
SECTION 2
DISASSEMBLY

Note: Follow the disassembly procedure in the numerical order given.

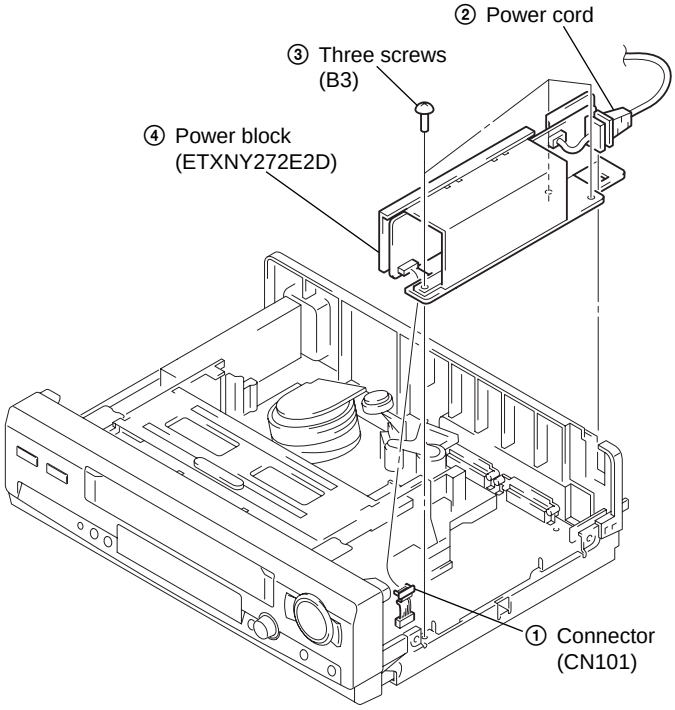
2-1. UPPER CASE REMOVAL



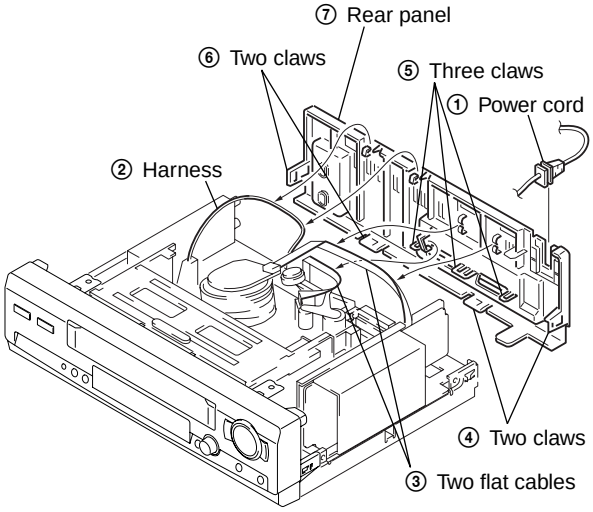
2-2. FRONT PANEL SECTION REMOVAL



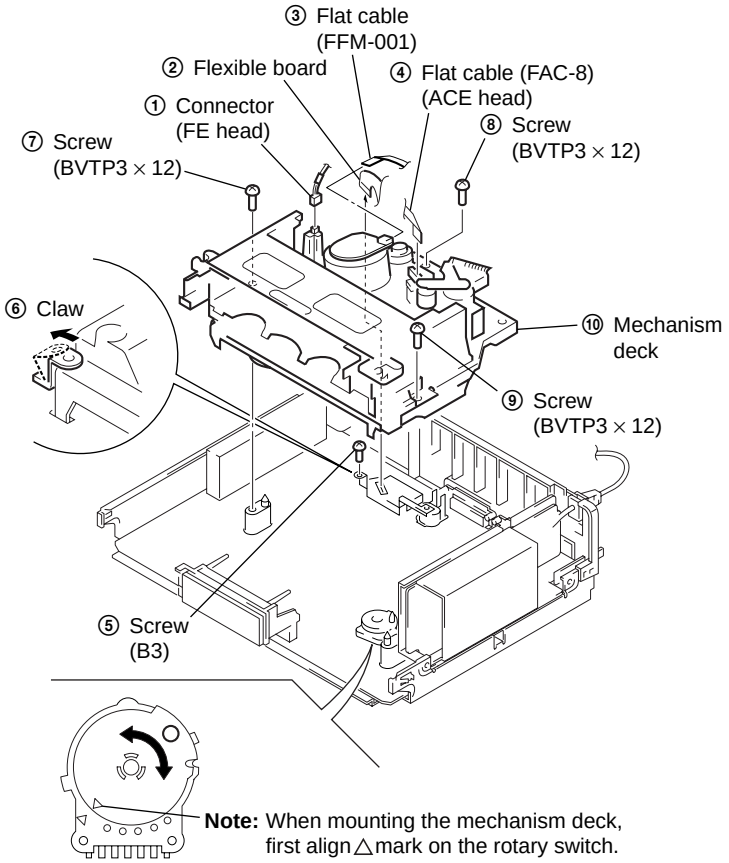
2-3. POWER BLOCK (ETXNY272E2D) REMOVAL



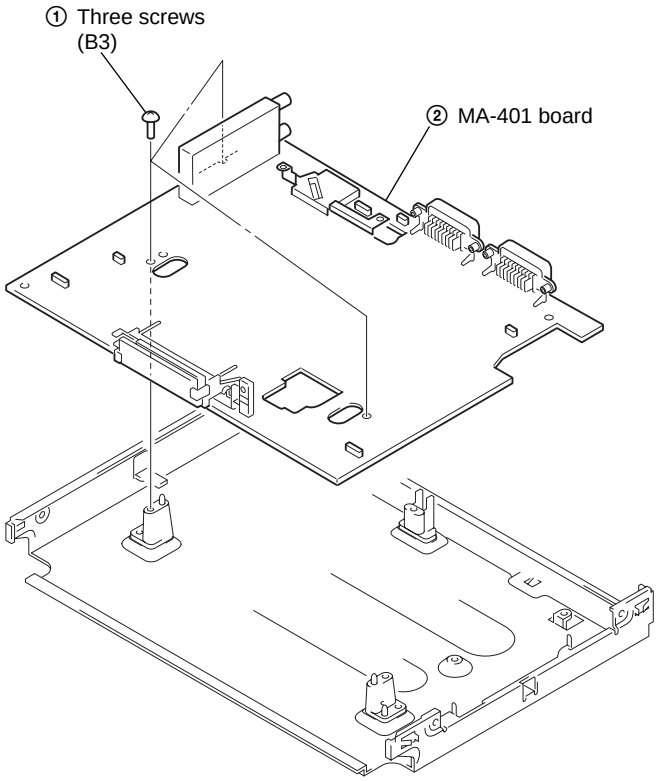
2-4. REAR PANEL REMOVAL



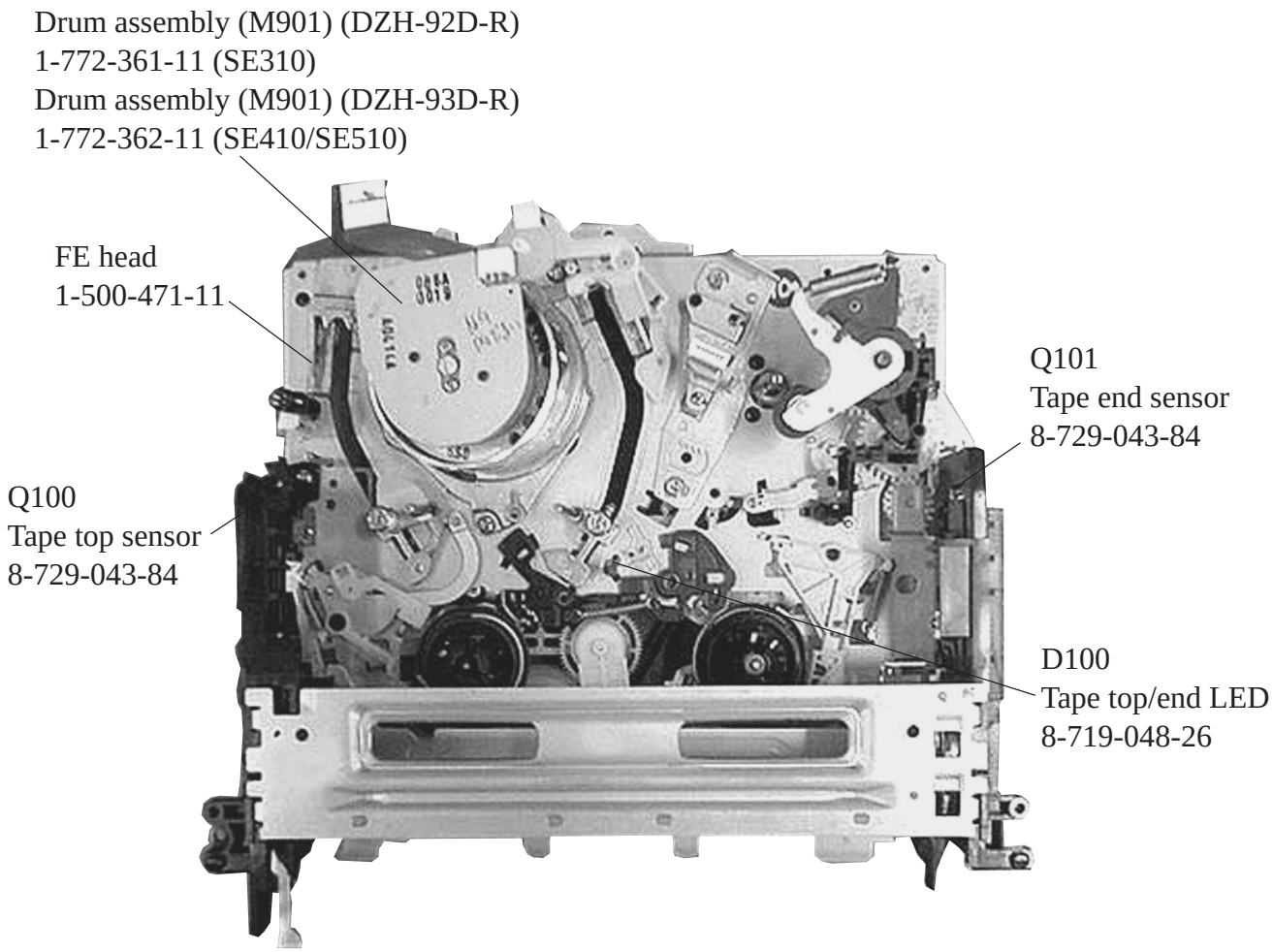
2-5. MECHANISM DECK REMOVAL

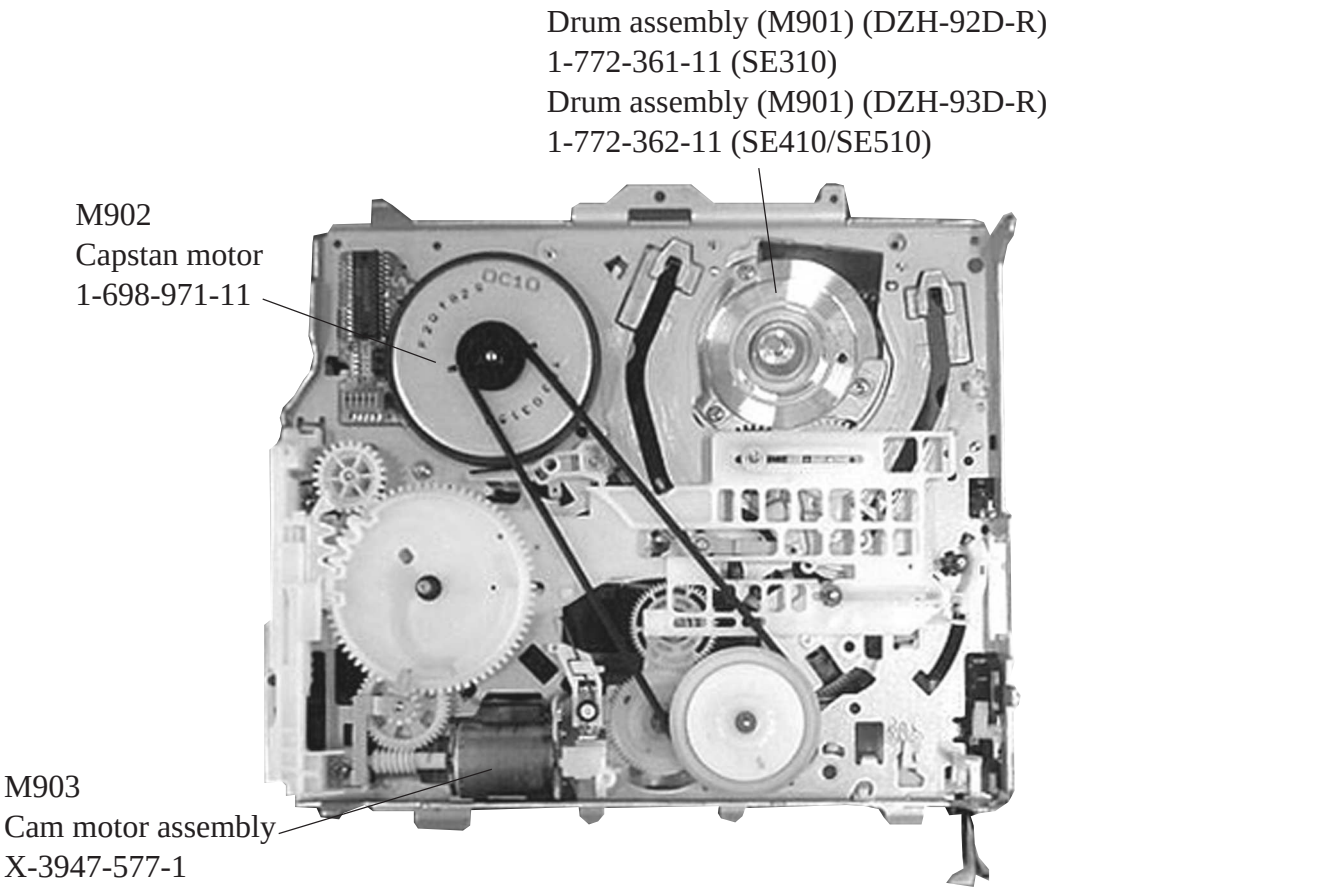


2-6. MA-401 BOARD REMOVAL

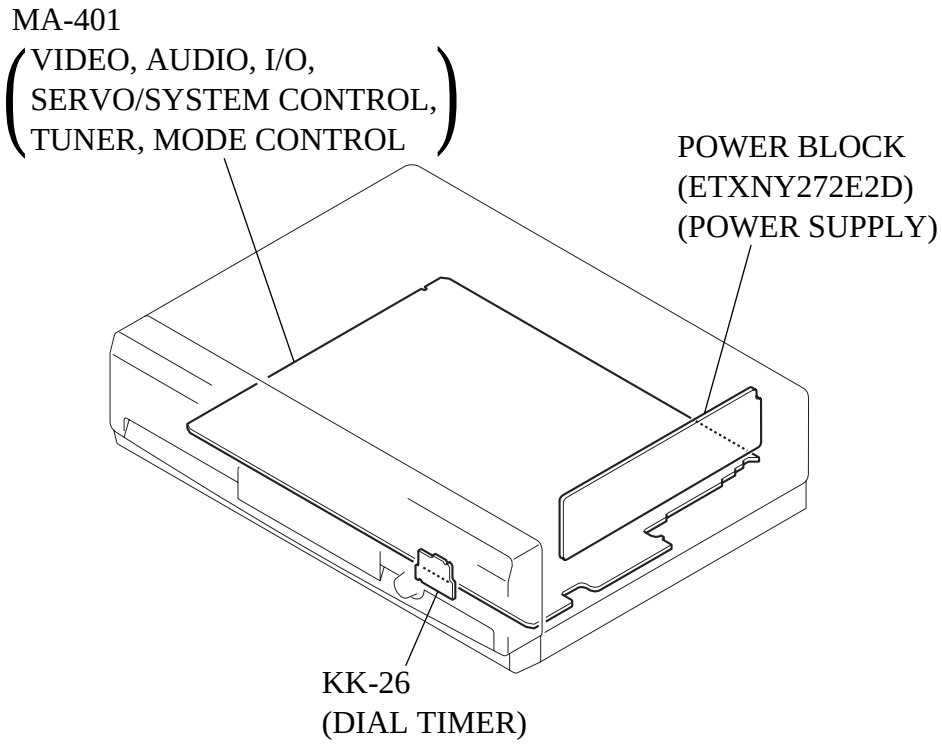


2-7. INTERNAL VIEWS





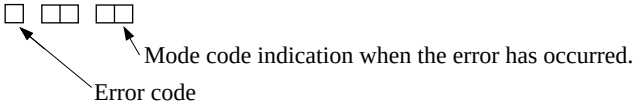
2-8. CIRCUIT BOARDS LOCATION



SECTION 6
ERROR CODES

6-1. ERROR CODE INDICATION

- Error codes are indicated using the lower 5 digits in the fluorescent display tube.
  "At this time, Colon ":"between character is not indicated."



ERROR CODE

0	No error
1	Cam encoder error Loading direction
2	Cam encoder error Unloading direction
3	T reel error
4	S reel error
5	Capstan error
6	Drum error
7	Error on initializing
8	Cassette loading error
9	Reserve

MODE CODE

0	Power-on eject	10	FWD x1	20	REW play
1	Power-on initial	11	FWD x2	21	Cas. loading
2	Power-off elect	12	CUE	22	Tape loading
3	Power-off stop	13	PB-pause	23	Power-off loading
4	FF	14	RVS-pause	24	Mecha. error (Power on)
5	REW	15	RVS x1	25	Power-on eject initial
6	REC	16	RVS x2	26	Power-off eject initial
7	REC-pause	17	REV	27	APC REC
8	Power-on stop	18	Power-off initial	28	Cas. loading
9	PB	19	Mecha. error (Power off)		(No auto PB check)

SECTION 7
ADJUSTMENTS

7-1. MECHANICAL ADJUSTMENTS

For the mechanical adjustments, please refer to the "VHS MECHANICAL ADJUSTMENT MANUAL Ⅵ (S MECHANISM)" (9-921-647-11).

7-2. ELECTRICAL ADJUSTMENTS

See the adjusting part location diagram from on page 7-4 for the adjustment.

2-1. PREPARATION BEFORE ADJUSTMENTS

2-1-1. Equipment Required

The measuring instruments used for this alignment include:

1) Monitor TV
2) Oscilloscope, dual-trace, bandwidth of 30 MHz or more, with delay mode (A probe 10:1 should be used unless otherwise specified.)
3) Frequency counter
4) PAL Pattern generator
5) Remote commander
6) Digital voltmeter
7) Audio generator
8) Audio level meter
9) Audio attenuator
10) Alignment tapes
    KRV-51P (PAL) Part No. : 8-192-955-57

2-1-2. Equipment Connection

Unless otherwise specified, connect and adjust the measuring instruments as shown in the following diagram.

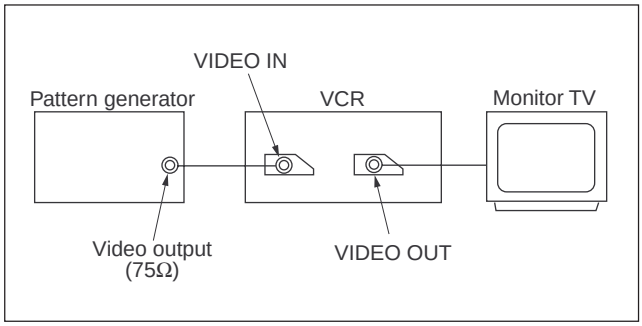


Fig. 7-2-1

2-1-3. Set-up of Adjustment

In this adjustment, PAL pattern generator is connected with LINE-2 input terminal. When check to tuner, connected AERIAL terminal. Check that the synchronizing signal of the Y signal has an amplitude of approximately 0.7 V and that the burst signal has an amplitude of approximately 0.3 V and its waveform is flat. And check that the level ratio of burst signal to "red" signal is 0.30 : 0.66. The video signal (color bar) used for electrical aligning this unit is shown in Fig. 6-2-2.

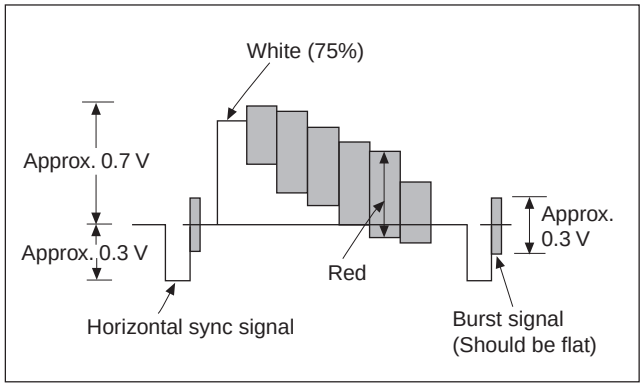


Fig. 7-2-2 Color Bar Signals of Pattern Generator

2-1-4. Alignment Tape

• Contents of KRV-51P

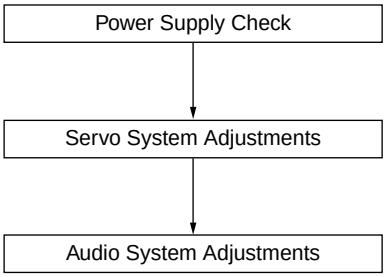
	Mode	Period	Video signal	Audio signal	
				Hi-Fi	Normal
1	SP	7 minutes	Color bar	400Hz (L/R)	400Hz
2		3 minutes	Monoscope		
3	LP	7 minutes	Color bar		
4		3 minutes	Monoscope		

2-1-5. Input/Output Levels and Impedance

Video input: LINE-1 (TV)/LINE-2 IN
Input signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
Video output: LINE-1 (TV)
Output signal: 1 Vp-p, 75 ohms, unbalanced, sync negative
Audio input: LINE-1 (TV)/LINE-2 IN
Input level: –7.5 dBs
(0 dBs= 0.775 Vrms)
Input impedance: more than 47 kilohms
Audio output: LINE-1 (TV)
Standard level: –7.5 dBs at load impedance 47 kilohms
Output impedance: less than 10 kilohms

2-1-6. Adjustment Sequence

The adjustments should be performed in the following sequence.



2-2. POWER SUPPLY CHECK

2-2-1. Output Voltage Check (MA-401 Board)

Mode	STANDBY
D5 V Check	
Measurement point	Cathode of D606
Specified value	4.8 to 5.4 V

Mode	E-E
–11 V Check	
Measurement point	Corrector of Q602
Specified value	–13.5 to – 9.5 V
SW +12 V Check	
Measurement point	IC601 pin ② or corrector of Q612
Specified value	11.7 to 12.3 V
SW +5 V Check	
Measurement point	Emitter of Q600
Specified value	4.8 to 5.4 V
MTR12 V Check	
Measurement point	Corrector of Q601
Specified value	12.6 to 13.6 V
SW +30 V Check	
Measurement point	Corrector of Q720
Specified value	33.5 to 36.5 V

[Check Method]

1) Each of these supply voltages must meet its specified value.

2-3. SERVO SYSTEM CHECK

2-3-1. RF Switching Position Adjustment (MA-401 Board)

[Adjustment Purpose]

To adjust the link of the A-ch and B-ch of the tape playback outputs.

To make the unit compatible with other tapes and units. If this specification is not satisfied, the link will appear on the screen and the screen will be disrupted, etc.

Mode	Playback
Signal	Alignment tape: SP color bar portion
Measurement point	CH1: CN262 pin ① (PB RF) CH2: CN262 pin ② (RF SWP)
Measuring instrument	Oscilloscope
Adjusting element	Remote commander CH+/–
Specified value	A=minimize

[Adjustment Method]

1) Playback the alignment tape.
2) Short CN262 pin ⑤ to Ground.
3) Check that "A P" is indicated on FL display.
4) Adjust so that part A becomes minimized at CH +/–.
5) Write data in EEPROM by pressing PAUSE button.
6) The display "A P" disappears and then the Adjustment mode terminates.

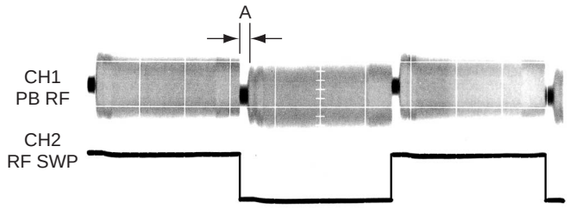


Fig. 7-2-3

2-4. AUDIO SYSTEM ADJUSTMENTS

[Connecting Instruments]

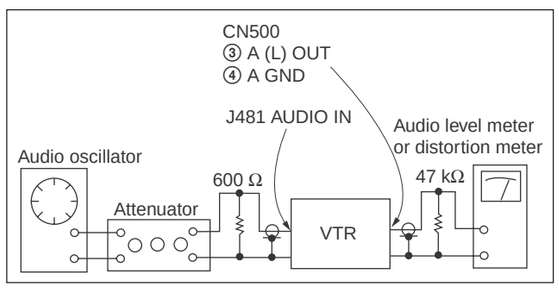


Fig. 7-2-4

2-4-1. Normal Audio System Adjustment

- Make adjustment in the SP mode unless otherwise specified. Use a normal VHS cassette for an adjustment tape.
- Set AUDIO MONITOR to normal.

2-4-2. ACE Head Adjustment

Refer to the VHS mechanical adjustment manual Ⅵ (S MECHANISM) (9-921-647-11).

2-4-3. E-E Output Level Check

[Adjustment purpose]

Confirm that the output level adjust the reference input is within the specification.

Mode	E-E
Signal	400 Hz, –6.3 dBs
Measurement point	CN500 Pin ③
Measuring instrument	Audio level meter
Specified value	–6.3 ± 2 dBs

[Check Method]

1) Input signal of 400 Hz and –6.3 dBs to the J480.
2) Check that the audio output level is –6.3 ± 2 dBs.

2-4-4. Frequency Response Check

[Adjustment purpose]

Confirm that the frequency characteristic is within the specification.

Mode	REC and PB (SP mode)
Signal	400 Hz, –26.3 dBs 7 kHz, –26.3 dBs
Measurement point	CN500 Pin ③
Measuring instrument	Audio level meter
Specified value	0 ± 3 dB

Note: Tape path adjustment must have been completed.

[Confirmation Method]

1) Supply a signal of 400 Hz, –26.3 dBs to J481 AUDIO IN.
2) Connect the audio level meter to CN500 Pin ③.
3) Adjust the attenuator so that the audio level meter will indicate –26.3 dBs.
4) Make recording in the SP mode.
5) Set an audio line input signal to 7 kHz and make recording.
6) Playback a recorded portion, and measure output levels at 400 Hz and 7 kHz.
7) Confirm that the 7 kHz playback output level within a range of the 400 Hz playback output level 0 dB to ± 3 dB.

2-5. ADJUSTING PARTS LOCATION DIAGRAM

MA-401 BOARD
(CONDUCTOR SIDE)